



ARTEX



ACR

ACR Electronics, Inc.
5757 Ravenswood Road
Fort Lauderdale, FL 33312
www.acrartex.com

**NTSB SAR FORUM
JULY 17/18, 2012**



- **Artex History**

- Founded in 1971 by Bob Chambers
- Purchased by Chelton Avionics (Cobham) in 1998
- Moved from Aurora, Oregon to Prescott, Arizona in 2010
- ACR Electronics, Inc Acquired ELT Product line in December 2011 & moved manufacturing to Fort Lauderdale

- **ACR History**

- ACR Manufactures Products for Land, Sea, & Air Markets
- Wide Array of Users In Recreational, Commercial, Military
- Received AS9100 Certification of Quality Management System on April 24, 2012

- **Number of 406MHz Beacons Manufactured by Artex/ACR**

- Total Exceeds 1.5 M Beacons (EPIRBs>800K, PLBs>400K, ELTs>200K)



- **Artex participation in Aviation standards bodies**
 - Chairman and Secretary of SC-204 to amend RTCA DO-204 to DO-204a
 - Participant in European/EASA standard change from ED-62 to ED-62a
 - Participant in RTCM SC110 subcommittee on 406 MHz Beacons
- **ACR participation in Land/Marine Standard bodies**
 - Chairman of RTCM SC110 (Beacons), SC128 (SENDs), SC119 (VHF DSC Hand Held Radios) subcommittees
 - Participant in RTCM SC119 Maritime Survivor Locator Devices Subcommittee
 - Board member of RTCM



- **Participation in Cospas-Sarsat Activities**
 - Head of RTCM Delegation to Cospas-Sarsat
 - Represent Beacon Manufacture's at Cospas-Sarsat Meetings and providing input papers as appropriate
 - Attend Joint Council meeting providing input on Beacon Specifications
 - Attend Experts Working Group Meetings developing Second-Generation Beacon Specifications
- **International Activities**
 - Expert of IEC TC80 Committee Maritime Navigation and Radio Equipment and Systems
 - IEC TC 80 Team 2 Leader for 406 MHz EPIRB Standard
 - Member of UK IEC TC80 Committee providing input GMDSS
 - Member of UK ITU WP5B committee on input on ITU Aeronautical, maritime and radio location matters.

ELT System Overview



THE SCIENCE OF SURVIVAL

- **Main ELT Components**

- ELT Transmitter (3 GA, 4 Bus/Com, 4 Rotorcraft ELTs)
- Cockpit Remote Switches (12 different Remote Switches)
- Antenna and Coax (5 Blade, 3 Rod, 6 Whip Antennas)

Single antenna output for emergency transmission on both
406 MHz and 121.5 MHz frequencies



OR





ELT Certification

– Applicable ELT Technical Standard Order (TSO)

- **TSO C126a**, 406 MHz Emergency Locator Transmitter (ELT)
 - **RTCA DO-204a**, Minimum Operational Performance Standards for 406MHz Emergency Locator Transmitters (ELT)
 - **RTCA DO-178b**, Software Considerations in Airborne Systems and Equipment Certification
 - **RTCA DO-160G**, Environmental Conditions and Test Procedures for Airborne Equipment
 - **RTCA DO-254**, Design Assurance Guidance for Airborne Electronic Hardware
 - **COSPAS-SARSAT T.001**, Specification for Cospas-Sarsat 406 MHz Distress Beacons
 - **COSPAS-SARSAT T.007**, Cospas-Sarsat 406MHz Distress Beacon Type Approval Standard
- **TSO C142**, Non-Rechargeable Lithium Cells and Batteries
 - **RTCA DO-227**, Minimum Operational Performance Standards for Lithium Batteries



RTCA Reference Documents

- **DO-183**, Minimum Operational Performance Standards for Emergency Locator Transmitters Operating on 121.5/243.0 MHz
- **DO-188**, Emergency Locator Transmitter (ELT) Batteries Guidance and Recommendations
- **DO-182**, Emergency Locator Transmitter (ELT) Equipment Installation and Performance
- **DO-154**, Recommended Basic Characteristics for Airborne Radio Homing and Alerting Equipment for Use with Emergency Locator Transmitters (ELTs)



- **Systemic feedback to the ELT manufacturers of ELT performance in all Aircraft Accidents**
 - Did it activate and for how long
 - If it did not activate, describe why
 - Description of how the ELT was installed
 - Photos of the ELT after the accident
 - ELT routinely sent to the ELT manufacturer after the accident to perform investigation



- **Increase 406 MHz Homing Capability of SAR Community**
 - 406 MHz 5 watt power vs. 50 milli-Watt power results in greater detection ability
 - Large number of Aircraft are already equipped with 406 MHz Direction Finding (DF) capability
 - Would allow the removal 121.5/243.0 MHz and its associated Battery capacity
 - Reduction in the physical size of the Antenna.
 - The current size of ELT Antenna's is driven in large part by the requirement to transmit on 121.5/243.0 MHz
 - Reduction in the physical size of an ELT Antenna would increase the survivability of the antenna and therefore the integrity of the ELT system
 - Would require TSO C126a to be changed as 121.5 Homing capability is currently required

Contact Artex Products



THE SCIENCE OF SURVIVAL

www.acrartex.com